Notebook, N-00-02-27

(X E-172) N-00-02-2.1

General Analyses
& Experiments

Work of Geo. Horn and
the Grove under supervision
of John Coleman Stempel

Book # 2.

Flag, Mt. Edziza

SiO_2	43.48
Al_2O_3	21.24
Fe_2O_3	23.64
CaS	.24 — {Total S .10}
CaO	5.88
MgO	.77
MnO	Trace

Alkalies
Moisture (loss)

Magnesia asbestos

25% $MgCO_3$

SiO_2	22.3
Al_2O_3	3.03
$CaSO_4$	1.80
$CaCO_3$	50.00
$MgCO_3$	42.17

Loss on ignitions.

~~49.65%~~ 51% of wt.

Magnesiasbestos

8.5% $MgCO_3$

SiO_2	5.46
Al_2O_3	2.96
$CaSO_4$	1.40
$MgCO_3$	87.04

Loss equiv

49% of wt.

Pages ore. Phil

SiO_2 1.31

Al_2O_3 } 2.97
Fe_2O_3 }

Dolomite

$CaCO_3$ 54.

$MgCO_3$ 42.06

Williams Ore.

Fe_2O_3 = 50 %

Zn metallic = 16 %

Looks like
iron pyrites with zinc

Drum one.
Concentrates Balmain

Fe_2O_3 =

S = .033 %

P = .105 " ?

TiO_2 = .75

Examination of Edison Battery Boards from Dualchalene.

Edison & Gordon

Edison		Gordon
Four Electrodes. Rod 3½% Standard Rod 4½"	SiO_2 >	SiO_2
	Al_2O_3 >	Al_2O_3
	CaO (low) <	CaO
	—	Mn + Zn
	SO_3	SO_3
	P_2O_5 —	P_2O_5

Non-magnetic Zinc Tails Flotation

Zn = 40.00%

Metallic Fe = 5.89

Zinc. Magnetic

Zn = 8.42

Met. Fe = 37.80

May 8 / 30. 1930

1. Naphthalene treated with conc. H_2SO_4 produced a mixture of X and β naphthalene sulphonic acid - Sodium salt of β compound soluble in water.

Sodium naphthalene sulphonate treated with different proportions of resin Follow and Boric acid does not form anything like a good way.

2. Chlorine passed into naphthalene till mass

became buttery. a mixture of chlor derivatives. Mixed with proportion to form a naphthyl stearate with sodium stearate-

3. $KMnO_4$ with naphthalene forms phthalic acid.

4. $K_2Cr_2O_7$ oxidizes to phthalic acid.

Phthalic acid will not combine to form an ester substance with resin or stearic acid

5. $MnO_2 + H_2SO_4$ forms with $C_{10}N_8$ a resinous acid not suitable for sublimation.

6. Conc. HNO_3 formed at first more nitro naphthalene low melting point –

Best results obtained with more nitro naphthalene

mono

(1). 33 % $C_{10}H_7NO_2$

33 " stearic acid

33 " paraffin

(2). 25 % C_{10} H_7. NO_2
25 % stearic acid
25 " paraffin
25 % resin

(3). 50 % $C_{10}H_7.NO_2$
50 % stearic acid

None of these gave a satisfactory mark but approached it ~~as being~~ more crystalline and ~~otherwise~~ fairly even textured

7. Further treatment of mono nitro naphthalene with conc. HNO_3 gave di nitro naphthalene higher melting point.

Tried many combinations of these substances with chloric acid rosin and paraffin but none successful

8. α di nitro naphthalene nitrate reduces with hydrogen formed a comp.

pomus probably
amido nitro naphthalene
which gave no better
results -

Acetylene Exp.

2 grams of carbide gives about 700 c.c. of gas -

Solution of $CuSO_4$ did not take out all odor -

Alkaline solu — tion made by dissolving copper $Cu(OH)_2$ in 25% solution of boiling potash took very nearly all odor out

but seemed to form too much black residue for phosphide of copper unless phosphorus was present in large quantities -

Pt. collected from tubes separated from pumice stone and examined showed presence of small amounts sulphide of copper.

Matt $CuSO_4$ in Tubes.

3.3 cubic gas take .055 gms $CuSO_4$

or 1000 cu ft take 1 pound.

Exp. with.

Citrate of iron and ammonium in 1 of tube

Fe acetate in 2nd

$FeCl_3$ in 3rd and

Pb acetate in 4th with

$CuSO_4$ in 5th and

alkaline copper in

last. Only last

2 Tubes showed a ppt. with 3 Mins of gas and gas at outlet had same perceptable odor as from the 9 Tubes of Cubes 4 -

May 6th

1700

Sat naphthaline and conc. HNO_3 ($1\frac{1}{2} C_{10}H_8$ to $4\frac{1}{2} HNO_3$ by weight) in dish. Allowed to stand.

1701

About 200 cc of Potassium Chromate with about 25 cc of Conc H_2SO_4 was placed on steam bath having been added about 20 gms. $C_{10}H_8$. Allowed to stand on steam bath a few hours, Filtered & allowed filtrate to stand

No Good

#702

200 cc of $K_2Cr_2O_7$ in flask with 25 cc of HCl and 20 gms $C_{10}H_8$ placed on steam bath over night. Diluted, filtered and allowed filtrate to stand

No Growth

#703

200 cc of $K_2Cr_2O_7$ in flask with 25 cc $KMnO_4$ and 20 gms. $C_{10}H_8$ placed on steam bath. After standing for 24 hrs. filtered.

No Growth

1004

200 cc of $K_2Cr_2O_7$ and 25 cc of H_2SO_4 with 40 gms. resin placed on steam bath for four hours. Poured off liquid + washed with H_2O. Placed on dish. On drying the color was lost to a noticable extent the substance evidently having been oxidized

1005

200 cc of $K_2Cr_2O_7$ and 25 cc of HCl with 40 gms. resin placed in flask on steam bath for seven hours. Poured off liquid & washed with H_2O. Placed on dish. On drying the substance darkened considerably in color

#706

About 200 cc $K_2Cr_2O_7$ with about 25 cc $KMnO_4$ add 40 gms resin. Placed on steam bath. for four hours. Poured off liquid + washed with H_2O, placed on desk On drying the color was noticeably changed. On cross section examination the resin appeared quite homogeneous

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#707

To about 200 cc $KMnO_4$ with about 25 cc (H_2SO_4) and 20 gms $C_{11}H_8$ placed on steam bath.

No apparent reaction.

708

Took about 200cc KMnO4 and 25cc HCl with 20gms. C10H8 and placed on steam bath for four hrs.
Found Ø liquid - evolved reddish [illegible] steam bath. Found it made ash. Filtered Ø allowed to dry. No appreciable reaction

709

[illegible] 200cc KMnO4 and 25cc HCl with 40gms. resin. Placed on steam bath. Solution soon changed from reddish to cloudy yellow.

[illegible]

The mass changed color on drying and in cross section was found to be quite homogeneous

500.
Took 200 cc $KMnO_4$ and 25 cc
HCl with 40 gms. resin + placed
in steam bath
found it ~~burned~~ burned
medium dry plate.
Changed color on drying and
in cross section was found
quite homogeneous.

March. 2. 00

7/1

Pure Chrysene [illegible] 20 [illegible]
through in $C_{10}H_8$ (50 gms).
Filtered through cloth + allowed to
stand. $C_{10}H_8$ crystalized out almost
immediately.

7/2

Chrysene $C_{10}H_8$ for 2¾ hrs. the
chrysene coming over in good quantity
only about ½ the time.
The substance was much darker
colored than that of 7/1.

713

Chronoamp. C_3H_8 for 7 hours. At one time a small quantity from the wash bottle was noticed floating on the clear appearance of the fluorescent green Coloring Matter in the cell. Also some of the Caustic Soda Solution was sucked into the cell. The $Na.C_{10}H_7SO_3$ was set aside in dish. A substance crystalizing out. The current was not constant a great part of the time

Chronoamp. 1.5 grams C_3H_8 for 9 hrs. Current quite steady but not very strong. Same appearance as 713

714
Chlorinated rosin carried out as 6 in flask for 1 hrs. The soda was back so the exp. was repeated as 715

715
Chlorinated rosin as above for 2½ hrs. The substance darkened in colour it being in a light globe. Upon cooling the mass became very brittle.

716 Chlorinated melted rosin directly in bath for three fourths hrs. The sub. turned dark very quickly and became brittle on cooling. Very homogeneous and having a smooth polished surface all the odor characteristic of rosin having disappeared. Skin electric to touch. Not as brittle as plain rosin

7/17

Took 30 gms. resin W. W and 30 gms
paraffin (120) and melted to-
gether in ~~beaker~~ Porcelain
for 3¼ hrs. Sub became very
dark in color. Product is not quite
a black. Soft and sticky

7/18 Distillation 20 gms. $C_{10}H_8$ and
20 gms. resin for ½ hrs. Substance
turned dark in color. (brown).
Did not present a uniform as
homogeneous as 7/16 and 7/17.

719
Tork 20 gms. $C_{10}H_{16}$ and 25 gms. paraffin melted. Solution cast clamped for 2 hours. Substance was very [illegible] and homogeneous. J.G.

720 Tork 15 gms. and 15 gms. paraffin melted & clamped for 2 hours.
Vapour hard, brittle, dry

#721

Took 100 gms. paraffine (120) melted & added first 10 gms. wood tar pitch then adding 20 gms. of turpentine melted 60 gms. bees wax added. The mixture stirred added the beeswax then the turpentine then the pitch & mixture stirred well. Added to compound of 10 gms. Vaseline & 60 gms. mixture in glass Chromatic wax. Took some to harden.

722

Took 100 gms. paraffine (120) & added [illegible] melting point 10 gms. wax 20 gms. adding [illegible] alum melted 110 gms. bees wax added [illegible] added the [illegible] & harden on rubbing well & the compound of 100 gms. [illegible] + 110 gms. + 10 [illegible] The resistance [illegible] was light & clear & showed as if [illegible] could be done well. It was a little [illegible]

#123

100 gms. paraffine (120°)
110 gms. iron oxide pitch
8 gms. carnauba wax

900 Shellac cut, then added

15 gms. magnesium resinate
Not brilliant enough. So added
15 gms. lemon yellow mg. resinate
and moulded small by finger
which has a reddish brown color.

#124

100 gms. paraffine (120°)
110 gms. resin (N W)
16 gms. manila gum
Shaved nicely. Use is two grays

Rickey

= 729 -

By weight

5 1/2 g wood tar pitch	16 1/2 gms.
5 g paraffine	15 gms.
1/2 g Carnauba wax	1 1/2 gms.
5 g Ca. resinate (Erv. 13)	15 gms.

small cylinder was formed. Slightly in color than 778 but cooled far more rapidly. The Ca. resinate seemingly biasing better effect than Mg. resinate. (Cylinder cracked during cooling and after not worth a d — Impossible to mould accurately)

726 Animated by one hour
55 gms. resin
50 gms. paraffine

Formed a very hard wax color. Its
volume if diluted + burnt
a substance that resists
shave well.

727 Animated by one hour
55 gms. wood tar pitch
50 gms. paraffin

728 Part of 727 remelted + reanimated
½ hour. The mixture carbonized
+ was therefore useless as a wax.

(Sc 723)

723 Clarinata for 1/4 hour

100 gms. paneer

110 gms. [illegible] rissa

16 gms. banana/mango

30 gms. veg. cutlets

730 Clarinata for 1/4 hour (Sc 724)

100 gms. paneer (120)

110 gms. rissa (veg)

16 gms. Mandira gems.

731 (See 732)

8 gms. wood tar pitch.
2 gms. Camphor (120°)

Flask & water & cooled.
The mixture solidifies without
contraction.

Henry

732 Mar. 12 00.

Took 40 gms. $C_{10}H_8$ - poured Sulphur
dioxide through for one
and three fourths hours,
the color changed very slightly
when the $C_{10}H_8$ melted.
Current was good for about
20 minutes only.
On cooling the $C_{10}H_8$ crystalized
out.

No change.

N3
Passed SO_2 through C_6H_6 for one hours
[illegible] same as 732

#734 Passed SO_2 through room for three hours.
The room turned turquoise blue, darker in color, but on cooling the chemical composition of the room seemed unchanged.

735 Passed SO_2 through $27\frac{1}{2}$ gms wood tar pitch melted with 20 gms of paraffine (125) properties same as 721, for two hours. When cold rub. Waxy nicely but is sticky, color almost black.

Mar. 18, 00

736 Passed NO through 80 gms. ?
$C_{10}H_8$ for $\frac{3}{4}$ hour. On cooling the
$C_{10}H_8$ crystallized out as in # 732

737 Passed NO through resin (no 1)
50 gms. in 3½ hours. Resin was considerably darker in color but remained fully as brittle when cold.

738 Passed NO through 21½ gms
rosin in petroleum melted with
25 gms. paraffine (120°) for 3 hrs.
When cool the mass is similar to # 735

739 To 30 gms $C_{10}H_8$ passed H_2S
through for fifteen minutes
$C_{10}H_8$ crystallized out. The oil had a
brown color.

140 Tosh 33 gms. resin fused Ullan. 14
Passed H_2S
through for 45 minutes
Then was no visible change.

140 Passed H_2S for 45 minutes through 60 gms. wood tar pitch melted with 60 gms. paraffine (m.p. 50°) No apparent change

Passed H_2S through 20 gms. wood tar pitch melted with 120 gms. paraffine (125°) for one hour. Was sticky

142 Tosh 33 gms. resin. Ground in mortar. Placed in cond. H_2O and allowed to stand. Next day yellow fluffy sub. Decided ether. Pour still retains stickiness

#

May 14

143 Ground 50 grms wood tar pitch and covered with conc. nitric acid + allowed to stand. Slight action.

144 Passed H_2S through 50 grms wood tar pitch for one hour. When cool it was homogeneous having a highly polished surface. Very brittle but as sticky as before.

145 Passed ammonia through 35 grms. $C_{10}H_8$ for 30 minutes. $C_{10}H_8$ crystalized out on cooling - No apparent reaction Tarnish taken place

Mar. 14

#746. Passed NH_3 through wood for 20 minutes. Soln in color & fluorescence change

Mar. 18 1914

#747 passed NH_3 through wood tar pitch for one hour. No appearance change.

#748 Passed NH_3 through 27½ gms wood tar pitch melted with 20 gms. paraffin (m.p.) for ½ hour. Odor of rosin after it was very strong

#749 Took 20 gms of #720 which is 10 gms wood tar pitch & 15 gms paraffin (m.p.) eliminated for 2 hours. To this added 2 gms Sodium Oleate (60%) melted together. Not sticky but not soapy either. Acts as if paraffin had not carbonized.

Illum 15-00

780 Melted 15 gms. wood bar
filled with 4 gms. paraffin
(12.5%) + allowed to cool. Was
sticky. Looks as if paraffin
had carbonized.

5% 1/2 = 32 gms. of #720
80% " 4 gms. Bismuth Subnit. (5%)
15% " 4 " Bismuth Mangoumer
Melted together.
Too gummy.

J-2.

3/20/00 J 0 % H 7 0 4

" J 0 % Linda Hayride 6.6 J-

Love ... Mom ... dancing
singing every Tuesday.

Jimmy

J-3.

3/20/00 J- g 7 0 4
J- g. pair,
J- g. St. Frida 6.6 J-

154 – Mucosa 704 – the mass is very brittle
3/10/60 Gum on than common
Firm and sticky.
The decrease in bulk
is considerable

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155 Mucosa 705
3/10/60 N. G.
Wood
mill

756 1/2 oz. Cannabis
4/25/00 1/2 oz. wood tar pills
Pretty good
but sticky.

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757 Saponified
4/25/00 Castor oil with
thick Caustic soda
N. G.

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758 Saponified
4/25/00 Castor oil with
thick caustic soda
N. G.

759 400 g. Rosin wg
4/25/00 20 g. Cas.

760
4/25/00 100 g. Rosin wg
5 g MnO2

761 50 Car.
4/25/00 50 W.D.P.
10 par
pretty good
stick

762 7 prs Can.
4/25/00 1 pr. pair
Jacket

21 prs ₹760
763 10 " Can
4/25/00 5 " pair
Jacket Pair
Slack

764

4/26/00 200 g. Rosin
1 g. Mud 2

765

5/1/00 Rosin melted
treated with
Conc. HNO3.

766
1/1/00 Rosie vomited
much cow HCL
A little Micky

767
1/1/00 Rosie vomited
with cough & Dex

768

5/1/00 Resin treated with Aluminum Chloride

Appearance No reaction

769

5/3/00 100 gms Resin

1 c.c. Cinc H2SO4

Sticky

770
5/3/00 100 g. Rain water
2 c.c. conc. H_2SO_4
Sticky

771
5/3/00 100 g. Rain water
3 c.c. Conc. H_2SO_4
Sticky

772
5/3/00 100 g. rosin 10W
4 g. conc H2SO4
not as sticky as the
others

773
5/3/00 100 g. rosin 10W
6 g. conc. H2SO4
5 c.c.
Re 777

774

3/1/00 100 g. Potassium Chlorate
Dissolve in conc H_2SO_4
See #777

775

3/1/00 100 pts potassium chlorate
10 pts conc H_2SO_4
See #777

776

5/3/00 100 g. [illegible]
12 c.c. [illegible]

see #777

777

5/3/00 100 g. [illegible]
12 c.c. [illegible]

Bacteria test.
Use bottle than common with
use Rhesus

778
5/4/00 100 g. [illegible]
2 c.c. Conc HNO_3

779
5/4/00 100 g. [illegible]
4 c.c. Conc. HNO_3

780

17/4/00 100 g. rosin was
6 c.c. conc. HNO_3

781

17/4/00 100 g. rosin was
8 c.c conc. HNO_3

782

5/4/00 100 g. potassium nitrate
10 c.c. concentrated

783

5/9/00 Mixtures of lead
proportion 400 to
300 lead acetate
310 "
400 "
450 "
500 "
525 "
550 "

784-
5/10/00 Solubility of Resinate in paraffine
N.G. very slightly practically insoluble

785-
5/10/00 Made rosin soap and ppt the resinic acids with HCl.
The melted acids have the appearance of rosin.

Probably used for remnic work

786
7/11/00 Remnants from
Acetic Ether

Very Slightly

787 Methyl Acetate
7/11/00 Remnants from
Slightly

788
7/11/00 Remnants from
Ethyl Acetate
Slightly, scarcely a trace

789
7/11/00 Remnants from
Benzene Slightly

790
7/11/00 Remnants from
Gasoline Slightly

791 Benzene
5/11/00 Permatte iron

792 Benzene
5/11/00 Permatte iron
complete & readily

793 Chloroform
5/11/00 Permatte iron
readily even in cold

794 Carbon Bisulphide
5/11/00 Permatte iron
in the cold

795 Ether
5/11/00 Permatte iron
in the cold

796
1/11/00 Stearic acid
Bismuth Iron
soluble
(Whether a solution takes
place or Transposition or both
proceeds is uncertain)

797
1/11/00 Oleic acid
Bismuth Iron
soluble -
see ( ) F.)96

798

5/11/10 Naphthalin

Resinate Ba

Readily soluble

Upon cooling the mass is hard + crystalline + cannot be infiltrated with paraffin as this throws out the resinate Ba

799

5/11/80 Stearate Soda

(Stearic Acid 700
Sal Soda 154)

Remnants Copper

Hard to say
just what does take
place — this Stearate
is colored green & has
a sediment at bottom

6/5/00 Dosed up

#777 with various

proportion sulphur

The sulphur goes in

very nicely with little

or no frost

Upon heating a while

chemical action commences

accompanied by frost

The resulting mixture is extremely

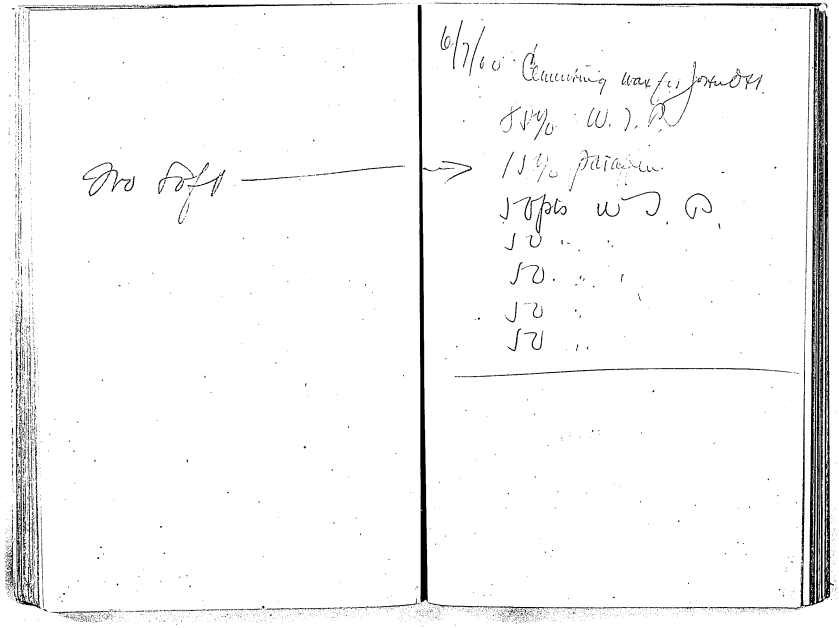
- Different from Bem-M in light yellow

mixture is not quite as soft

and not brittle as large pieces but

left to crumble upon exposing

to little sunlight asphalt mixture



6/11/00

Mr Edison suggested finding a partial solvent for the resinates, then separating the insol. part, decomposing with acids and then making sodium salt. His idea is to get rid of sticky portion. The resinates are completely sol. in Benzol, carbon bisulphide, Ether and Chloroform, naphtha, partially soluble in Kerosene, Gasoline, Methyl & Ethyl alcohol " Benzine,

Apparently unaffected by paraffine, ceresine

6/11/00 Treated the minerals of Ca, Ba, Pb, Al, Cu and Iron and zinc with Kerosene then decanted off the Kerosene solution and treated insoluble part with dilute HCl. The HCl and also dilute H_2SO_4 has little or no decomposing effect on the minerals.

6/17/00 Made rosin soap

Used the idea of making a few minerals. - examining the mineral to see to buy — electrolyze the sodium minerals to see if which is died - to record to morrow

Also made partial saponification of the rosin

Next continued the oil of the minerals to Turpentine and turpentine - they do not appear to be decomposed by acids

a/18/00

Cement for Japan Ont.

5 pts rosin 2 cent
2½ " plaster of Paris 2 cent

equal parts
rosin & plaster of Paris
Very hard

---

1 pt rosin
2 " plaster of Paris

Too much plaster of Paris

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10 pts rosin
5 " plaster Paris
1 " Japan wax
Too soft - not hard but pliable

6/17/00

Ppt. resinate of manganese from sodium resinate solution by means of a manganese salt

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passed current through a solution of sodium resinate – a deposite appeared on the positive pole – white which upon fusion had the same appearance and sticky qualities of rosin – upon leaving the deposit in the solution over night, it all dissolved – It is probably nothing more than the resinic acids. The solution has a

better conductivity than
the acetabulum portion of the
same crab.

6/14/00 Continued the practice

Saponification of rosin

Passed hydrochloric acid gas through rosin - then added zinc-metal and then pass gas through again for 3 hours longer - Sticky - Then added sal soda - still sticky, apparently no change

Treated melted rosin with sulphur Chloride - apparently the same compound resulted as when treated with flour sulphur but without the disagreeable smelling gas.

Then Solution appeared a little
darker than the other -

Then treated it with some
metallic zinc apparently
no reaction -

Then added Hcl acid
which united into combination
immediately - Heating caused effervescing.

Smelled the Formic acid
kept by the assistant but found
them unchanged

Continued washing the
manganese residue

6/15/00

The portion of the resinate of Pb insoluble in Petroleum is fully one decomposed by acids even before boiling - the pptd resinic acid is sticky and resin like in appearance

Made alcohol solutions of rosin and compound got yesterday and reduced with zinc & hydrochloric acid. With the latter solution no reaction between Zn + HCl occurred, but in former reduction took place

made Carbon bisulphide solution of rosin and then tried to reduce with nascent hydrogen, could not generate the H on account of great S. G. of CS_2

Evaporated off alcohol the resulting mass gelatinous looking, sticky, but hard before fusion - after fusion the stuff sticky & similar to rosin.

6/16/00

6/1900

Continued the hydrochloric acid treatment, also the hydriodic acid + phosphorus.

Have commenced a series of experiments - treating resin with various substances under pressure - did considerable reading - First tried sulphur + resin - ordinarily decomposes at the point of Chemical Combination 7 180° by wh is lost in gases

6/19/00

Made two experiments under pressure with iron, sulphur, and Cuban Asphalt - but lost both by explosion

Mr Mabery gave me a piece of Lambert - compared it thoroughly and began - then for zinc determination and one for a qualitative examin

6/20/00

Continued Zinc re analysis found it necessary to report Zn as Zn & first & then as basic carb.

Heated rocin & & underpressure also rosin & Zncl2 again. about underpressure & no from - See FI 1038 etc

6/2/00

Have more explosions.

Treated resin with sucrose with the purpose of adding & further working up the product

Finish the qualitative determinations (not just as about to weigh the steam bitter sprayed them, so must repeat.

Have decided to stop heating materials in glass tubes.

Too expensive

1. dangerous

The experiments that have been carried out little or no encouragement for continuing along this line

6/27/00

Started and practically finished the zinc determinations

Dosed up the remainder — with guercitrin with Sodium Fluoride, sodium resinate — with the idea of a possible joining of the Fluoric acid (radical) with that of the resin and the two resins radicals together.

For Tomorrow

Passed HCl gas through the remainder treated with guercitrin no changes except increased the Ruins

6/24/00 Saturday.

Weighed the zinc & Cu & reported them to Mr Mallory.

Tried to get a reaction to occur between chlorinated naphthalene and the sodium salt of Stearic & rosin. Hot is underway to form an ester of the naphthalene & Stearic acid. Am keeping it at temp of 140° C for fours hours in sealed tube but apparently no reaction will continue Monday.

Passed HCl gas through Stearic acid so as to formed an addition product, then will treate

this compound same way as the chlorinated naphthalene. It is darker & more liquid than plain oleic acid. Will also further chlorinate it but it will be practical commercially. Will also try this salts reaction in alcoholic solution.

6/7/00 Continued the experiments started Saturday - for results see Book 4.

Also started a qualitative analysis of an ore sample.

6/16/08.

Nilson the New Chemist
Started in, Had him making
Nitrate Mg & Prepare Mg.
Mg. Continued on the
one and began qualitative
Analysis.
Also did work on
the battery for Edison Mfg.
Do. Re BK. on Ed. Mfg. Co.